Integrating and Organisation of Multidimensional Virtual Citizen Database with Extinction and Limited Access

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ABSTRACT

In this fast emerging and scientific world, technology plays a major role in every aspect. Day by day new concepts are being developed resulting a better work in a much easier way. Few applications are need to be developed to optimise flexible, faster and a paperless functioning. Nowadays, it is very essential for a person to carry every detail, even to step out of his house. They need to carry their identity cards such as passport, driving license, visa cards, etc., issued from various government sectors. Instead of carrying all of them, and to make it easier it is better to have a system which holds all the information of a citizen in one single card. This is will provide transparency, security and offers paper less work which makes environment friendly. In the present work, a multidimensional database is created and stored in a cloud for government sectors with limited access at different hierarchical positions.

General Terms Database, Citizen Data

Keywords National database, One-card, Unique number, Data security, Multidimensional database

1. INTRODUCTION

An individual identity is a very prominent and an essentiality to be carried by every person wherever he/she go any sector. Recognition of a person is done basing upon the documents and unique cards they have, which are designed and are registered by government authorized individual departments. Every unique card of a person has plays a different and a major role in a person life. People need to be register under different government organizations for different purposes. We get our Driving License from Transport offices, similarly citizenship to travel overseas are issued by Passport & Visa Division of the Ministry of External Affairs, National ID card, cash card etc. These are all issued by different organizations and provide each citizen an identity, and each identity card plays a unique role. For example, Licenses are issued depicting a person's eligibility to drive, Passports to travel overseas, etc. Their issue is very essential, but collecting them individually and carrying them as a proof of identity every-where we go is a serious problem. We might sometimes forget carrying few of them and we might lose them also. It is time consuming to show all of them when needed. Instead it is better to integrate all the details of a particular citizen into one single unique card, where every detail of him is given and can be accessed. It acts as a replacement for 'n' number of cards. For this purpose a web based applications is developed, which allows executives and assistants to pair up. Here, a person will be able to access data from different departments. It makes work more easy and efficient.

The purpose of such automation of citizen's identity by one card is to provide a helping hand to people in times of need. Every detail of a person such as, citizenship, children, designation, marital status, and other details like PAN (Permanent Account Number) Number, Passport number, and all other Identity card

details are automized into one individual card along with the person's photo identity .An application- One card system is being designed to overcome problems in the existing system.

1.1 Scope of the work

Many surveys revealing that Web-based application highly required in developing the service oriented architecture [8].

For instance, citizens of India need to provide their PAN card whenever they do transactions more than the prescribed amount. A police may ask about the vehicle registration details on the road or a police may be curious to know about past criminal history of a person or a police must be known about the health condition of a custodian or an illegal person before interrogation. A bank officer must know about financial history of a person before he sanctions the loan. If a doctor knows the health history of a patient before he examines in an accident case, doctor can do better and fast diagnostic and can suggest best chemicals to the patient for quick response. A better and reliable world can be developed and it is very essential to transferral this to our children. Now this is in our hand to build reliable nation.

2. SYSTEM ANALYSIS

In our everyday life, we are supposed to carry details like Cash card, Passport Number, and other Identity numbers, in terms of many documents, everywhere we go, which is a very tough job. Sometimes we may forget few which may sometimes save our lives too. In case of for Senior citizens, when they step out, they may face different situations which they mostly cannot handle all by themselves because of their age.

Few issues in our lives:

- In situations like an accident, which resulted in a person's severe blood loss, it is quite a time consuming process to know the medical history of the patient and give respective treatment. There is no easy process where his medical history can be accessed within a small span of time.
- Police checks for the person's license, insurance of the vehicle, registration details, etc., when we go out with our vehicle. We might sometimes forget a document among all, which makes us pay heavy penalties.
- It is not advisable to carry all of them, sometimes we might lose them which results a very big procedures to get them back or get a new ones.
- When we go abroad, there is a very big necessity where a person's every detail is very much needed, but it difficult to carry all of them and go for a vacation.

There are many other issues discussed in section 1.1. To overcome such problems, it is very much essential to design an application to make work much easier. Spatial data is combined with attribute data. The attribute data is stored in DBMS tables

with a number of rows equal to the number of features in the binary tables and joined by a common identifier [2]. The fundamental task of multi-dimensional data modelling is to study the spatial phenomenon, to describe the organization of spatial data, to design the pattern of spatial database including the definition of spatial entities and their interrelationships, to ascertain the entities and their relationships, and to design the physical organization, storage path and database structures in the computer [2] [3].

3. EXISTING SYSTEM

In traditional systems verification of correct data storage in the server might be done without the knowledge of the whole data. It is very challenging to design a database system with different kinds of correct data access with safety for each local server stored in the main server and stored in the local server for the end user. The data stored in the server may be frequently updated by the users, including insertion, deletion, modification; appending, updating, etc. While designing multi-dimensional database system it is required to consider dynamic data operations.

Many existing systems are mainly concerns about one type of database system. They mainly concentrate on single subject such

as cancer detection, health records [1][9] or geospatial database [2].

4. PROPOSED SYSTEM

The proposed system serves as an immediate reference to illustrate all services such as Cash card , Passport Number , and any other Identity numbers which are required to be carried in our daily life. A system where every detail of a person is to be stored and can be accessed, should be made in-order to overcome our problems in the existing system, it is very useful in reducing loss of time in information accessing and flexible data accessing. By utilizing the homo-morphic token with distributed verification of erasure coded data, our scheme achieves the integration of storage correctness. We can almost guarantee the simultaneous identification of the misbehaving server(s). Through detailed security and performance analysis different encryption keys are used to provide authentication at different levels of authorities.

The unique card or card number sometimes plays vital role in emergency. This application is being designed based on html, java and database concepts.

Figure 1: block diagram of the present system model

As shown in figure 1 in every public sector the citizen's details are needed to be enter and update periodically to avoid late response and misleading the employers. All public sectors or private sectors such as hospitals, banks, petroleum sectors, universities and other are individually connected with main server. The data bases at individual sectors are updated with common user ID, which is a unique number and password. An end user can access this database through internet/intranet. End users can access this data in their laptops, palmtops, desktops or cell phones. The class diagram of the proposed system is described in figure 2.

Few uses of the proposed system:

- The unique number will help the security officers to analyse and evaluate the person character.

- The traffic police can easily verify the vehicle and travellers details by entering their unique number in their authorized electronic gadget such as palmtop. So vehicle owners need not to bring multiple documents.
- This card will be of more use to the senior citizens in case of emergencies, where they cannot handle by their own.
- This card helps in bringing the lost children back to their family, through the children's details that are available on the card.
- This card helps us to access the medical history of a person like his blood group, DNA record, ancestors record etc., that are mentioned on the card without any delay during unexpected situations.

- Sometimes, the insurance details available on the card about that person enables, in getting a cashless Treatment in situations where we may get hospitalized unexpectedly.
- This card helps to access the details of a person, within no time and makes work much easier wherever the need arises.
- It acts as a nationality identity for every person born in the country.
- Availability and accessibility of vital health information 24 hrs a day, seven days a week, regardless of where the person requiring care happens to be [9].

Figure 2: Class diagram

A common server is connected in the network to provide objectives of distributed resources such as interfaces, protocols, data objects and other server profile. A separate protocol is developed to provide security at all distributed servers[1]. All the servers in the network must be installed with this template to provide secure interface with admin server, local server and clients. The spatial data is organized and stored based on topological relationships. This model provide high speed data access, more accurate data entry and high performance Multi dimensional database system [2].

5. SYSTEM DESIGN

Currently, spatial data and spatial database applications become very important because of the major spatial position and relation data management [4]. In the current paper spatial data management for National database system is discussed to increase the system performance. According to the demand analysis the present Information system categorized into spatial database and attribute database [5].

5.1 Admin Module

Admin registers the citizen details and uploads the image of it as an identity and generates a card. A use case shown in figure 3 is a set of scenarios that describing an interaction between a user and a system. A use case is an external view of the system that represents some action the user might perform in-order to complete a task.

Figure 3: Use case diagram: describing a set of scenario in the present system

5.2 Citizen Module

Citizen gives all his data at the time of registration. He will be given with an identity card which holds all the details of him including his Medical history, Personal details, Emergency Contacts, and different Identity card details .

Logging: There are two types of Logins. Admin and Citizen as shown in figure 3. While citizen account is for every individual, admin account is for every organizational person. Logging can be done with unique number and the citizen's individual password or admin's password as shown in figure 4. One of the security issues are shown in figure 5. A login page is shown in figure 6.

Interfacing Database Accounts: To link a database of a department, such as hospital, police, financial, Educational institution, Passport, License, and security etc., it has to be verified the permission granted over the data to a particular department. The permissions can be granted over on the data using primary keys and defining access rights.

Data globalization: For an organization, say a bank , it may refer the previous loan records of a person irrespective of which bank the previous loan sanctioned. This might give a clear illustration of the personal financial status. Similarly a doctor can depict the patient illness by analyzing patients past health record.

Hierarchical accessibility: As we cannot give moderation permissions to all the staff, to see peoples information, we restrict access certain levels, where only some people can add, modify details of any other person in the organization. By giving limited access to the citizen's database to various authorities, we can provide fast, reliable and transparent services to the society. What happens if we can access all the above information with one card number? A traffic police can verify the vehicle registration and other details by entering citizen's number. A financial officer of TAX department can monitor a person's transactions and income every time. Besides customer financial history, if the bank officer knows about the customer's family background, health history, assets, whether he/she is a past defaulter and criminal history, the bank officer can analyse and review his decision for better servicing the customer and company. But it is very important to see that every authority must be given limited permissions to see the details of individual's particulars. For example a bank officer should know the customer's type of health problem, and type of criminal activity but not the level of the activity. A traffic police should know about the vehicle details and past punishments append, but not his financial status as it is un- important for him as shown in figure 7. So the providing data security and limited access is not that easy as developing the citizen's database.

Figure 4: Data flow diagram of logging system into database

Figure 5: Recording login logout detail of an account for security purpose

Figure 6: Login page

NATIONAL DATABASE SYSTEM:TRAFFIC POLICE	
GENERAL INFORMATION/CRIME REPORT	
Home Departments Records Applications News Registrations	Unique Number <input type="text" value="0123456789A"/> Security Code <input type="text" value="*****"/> <input type="button" value="Submit"/>
	Personal Identification Male, mole on right arm under thumb finger, mole on neck left side
	PAN Card <input type="text" value="ABCD3456"/> Licence <input type="text" value="abcd123456"/> Vehicle Registration No <input type="text" value="ad12345620132411"/> Bank A/c No <input type="text" value="SBI12345678910"/>
	Number of persons in the family <input type="text" value="Fa,Ma,Sis,Bro (4)"/> Bank A/c No <input type="text" value="AB12345620132411"/>
	Voter ID No <input type="text" value="VSPAP01234"/>
	Health record as per last check-up Skin color:Brown with light hair, black eye lids Blood group:O+, Blood platelets:189000, Height:189cm Wt: 81kgs BP: Normal Sugar:Normal Surgery: Eye surgery at 20:37 24-11-2012 No Cardiac problem
	Past Crime record Drunk n driven fine on21:29 29-12-2010 Action-Fine:INR500 Neighbour complain on 23:50 14-11-2012 Action- Fine:USD30 Rash driving on 20:02 24-11-2012 Action: Counsellled
	Enter Crime record if any Drunk n driven caught on21:29 29-12-2013 Action-Fine:INR1000
	<input type="button" value="Submit"/>

Figure 7: A database for Traffic police access and report

6. CONCLUSIONS

A virtual database model is created and model of various public sectors are created. A unique number is allotted to each person to which all the departmental data are interfaced. An effective interface is developed between multidimensional database and public sectors. Permissions and limited access is granted according to the prior requirements. A limited permission is granted to end users on citizen's database. Every citizen's details will be automatically updated in the respective database and copied into public and private fields whenever the citizen admit or enter any organization. But privacy of a citizen is more important than anything around his/her environment. So certain rules and acts must be amended before disclose or made available the citizen particulars to any authorities or departments. Multiple updates and modifications is done in the present work. Correct data is accessed from respective server and security is provided by providing individual tokens.

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